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Frontiers in Geoscience Colloquium

Monday, April 18, 2016
3:00pm – 4:00pm
Physics Auditorium (TA-3, Bldg 215)

An Introduction to the Underground Nuclear Explosion Signatures Experiment

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National security priorities include global nuclear explosion monitoring to determine the detection, location, and identification of suspected nuclear explosions. Such monitoring currently relies on sensor networks; in some cases, prompt signals may not provide sufficient locations and the timing and amplitude of non-prompt signals may be difficult to determine. The Underground Nuclear Explosion Signatures Experiment (UNESE) program addresses research and development (R&D) associated with nuclear explosion monitoring and nuclear nonproliferation. The National Nuclear Security Administration's Office of Defense Nuclear Nonproliferation Research and Development (NA-22) sponsors this multi-year R&D project. Scientific knowledge and capabilities developed via UNESE enhance U.S. capabilities in the detection, location, and identification of underground nuclear explosions (UNEs), with particular focus on non-prompt signals.

This presentation will describe the wide range of UNESE R&D that began in June, 2015 and will continue through FY 2018. LANL's strong contributions and excellent technical work will be highlighted in the presentation and collaborations within LANL and across the UNESE organizations will be also discussed. This multi-organization R&D effort includes field and laboratory experiments, signature measurement and detection remotely, at the surface and in the subsurface, using a suite of methods. These experiments and field campaigns are performed in conjunction with modeling and simulation efforts to develop a better understanding of the multi-scale physical and chemical processes associated with UNEs.

Host: Claudia Mora, EES-14, 5-7832

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